

<b>Notice of Allowability</b>	Application No.	Applicant(s)	
	10/791,132	HOPKINS ET AL. /	
	Examiner	Art Unit	
	Elias Desta	2857	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment filed on October 5, 2005.
2. ☒ The allowed claim(s) is/are 1 and 4-12.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received. /
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)):

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. <input type="checkbox"/> Notice of References Cited (PTO-892)</li> <li>2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</li> <li>3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br/>Paper No./Mail Date _____</li> <li>4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br/>of Biological Material</li> </ol> | <ol style="list-style-type: none"> <li>5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</li> <li>6. <input type="checkbox"/> Interview Summary (PTO-413),<br/>Paper No./Mail Date _____</li> <li>7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment</li> <li>8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance</li> <li>9. <input type="checkbox"/> Other _____</li> </ol> |
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## Detailed Action

### Response to Argument

1. Applicant's arguments, see amendment, filed October 5, 2005, with respect to the rejections of claims 1-12 under 35 U.S.C. 102(e) have been fully considered and are persuasive. Therefore, the rejections have been withdrawn.

Further, the Examiner accepts the amendments to the drawing, and acknowledges the cancellation of claims 2 and 3.

### Allowance

2. Claims 1 and 4-12 are allowed. The following is an examiner's statement of reasons for allowance:

In reference to claim 1: Terry et al. (U.S. Patent 6,772,633) teaches a method of fault detecting (acoustics-based diagnostic) in printing equipment (printer) having at least one sensor (see Terry et al., Fig. 1, section 110) with at least one output indicative of the present state of the equipment (see Terry et al., Fig. 3, section 322). The method includes:

- Establishing sensor data that are representative of a state of the equipment under a fault condition where the fault condition generating a recordable failure signature (fault fingerprint) (see

Terry et al., Fig. 2, section 214 and column 3, lines 39-47),  
paragraph 13);

- Storing the data in a fault fingerprint library or signature database  
(see Terry et al., Fig. 1, section 118 and Fig. 2, section 214);
- Determining the present state of the equipment (printer) using at  
least one sensor (see Terry et al., Fig. 2, section 218); and
- Detecting the fault based on the comparison of the present state  
sensor data with at least one fault fingerprint in the fault fingerprint  
library (see Terry et al., Fig. 2, section 220).

The method noted in Terry et al. only works if the device is noisy in operation, and is not applicable in a semiconductor-manufacturing environment where the operation is noise free. Whereas, the claimed invention is a method of fault detection in a semiconductor substrate chamber-processing tool having at least one sensor providing a plurality of data sensitive to tool-state and process-state changes. The claimed invention further includes a means to establish a set of vectors representing the magnitude and direction of the deviation of sensor data from nominal values where the step is repeated for a plurality of different fault conditions and storing the resultant sets of vectors in a fault finger print library.

The remaining claims are dependent upon claim 1 and contain further limitations.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elias Desta whose telephone number is (571)-272-2214. The examiner can normally be reached on M-Thu (8:30-7:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (571)-272-2216. The fax phone numbers for the organization where this application or proceeding is assigned are (571)-273-8300 for regular communications and After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571)-272-1750.

Application/Control Number: 10/791,132

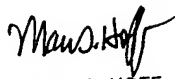
Page 5

Art Unit: 2857

Elias Desta  
Examiner  
Art Unit 2857

-ed

December 14, 2005

  
MARC S. HOFF  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600